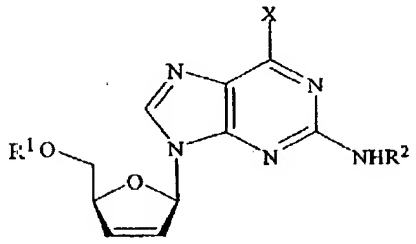
diseases caused by retroviral infection. More particularly, in preferred aspects, the present invention provides a method for the use of novel prodrug forms of 9-(2,3-Dideoxy-β-D-glycero-pent-2-enofuranosyl)guanine (d4G) for the prevention and treatment of both wild type and drug-resistant Human Immunodeficiency Virus (HIV), the causative pathogen of AIDS. Compounds according to the present invention are based upon the chemical formula:

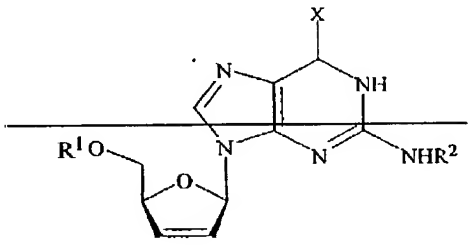


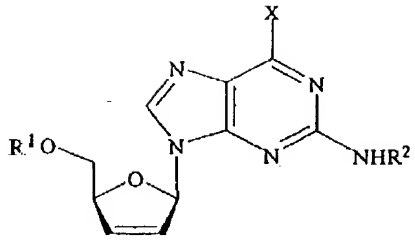
where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;
R^1 is H or a C_1 to C_{20} acyl or ether group, a phosphate, diphosphate, triphosphate or phosphodiester group; and
R^2 is H or a C_1 to C_{20} acyl or alkyl group.

In the Claims:

Please amend the claims as follows:

1. (Presently amended) A compound according to the structure:





Where where X is ~~OCH_3~~, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;

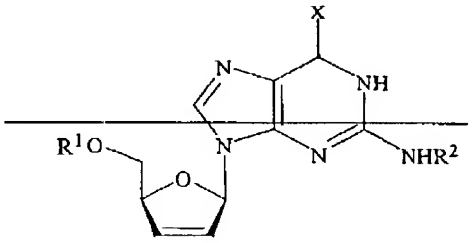
R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and

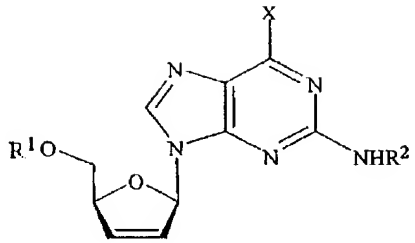
R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group

or a pharmaceutically acceptable salt thereof.

2. (Original) The compound according to claim 1 wherein X is an aminocyclopropyl group.

3. (Presently amended) A pharmaceutical composition comprising an anti-HIV effective compound according to the structure:

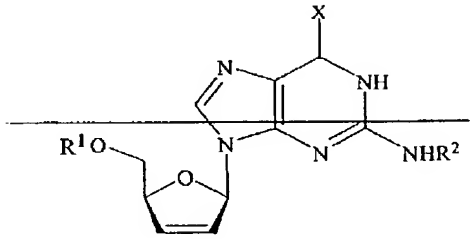


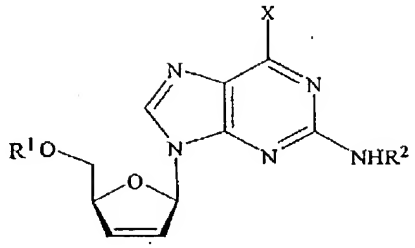


~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;
R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and
R^2 is H or a C_1 (acetyl) to C_{20} acyl or ~~ether~~ alkyl group
or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

4. (Original) The composition according to claim 4 wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

5. (Presently amended) A method for inhibiting the growth, elaboration and/or the replication of HIV in a patient comprising administering to said patient an anti-HIV effective amount of a compound according to the structure:

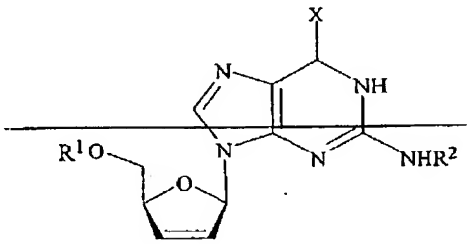


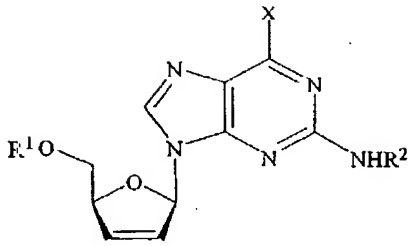


~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;
R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and
R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

6. (Original) The method according to claim 5 wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

7. (Presently amended) A method of reducing the likelihood that an individual will contract HIV or that an HIV infection will mature into AIDS in a patient comprising administering to said individual or said patient in need thereof at least one compound according to the structure:

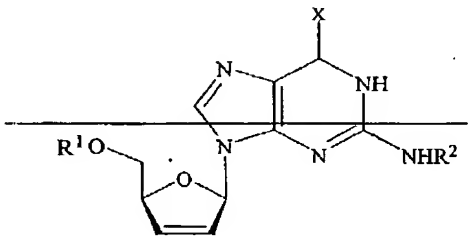


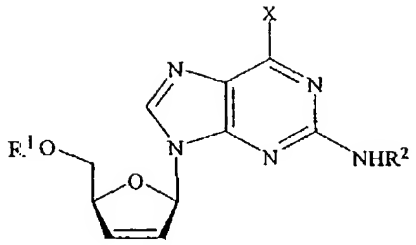


~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;
R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and
R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group or a pharmaceutically acceptable salt thereof, optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

8. (Original) The method according to claim 7 wherein wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

9. (Presently amended) A pharmaceutical composition comprising a ~~combinatnion~~ combination of an effective amount of a compound according to the structure:





~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;
R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and
R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group or a pharmaceutically acceptable salt thereof; and at least one additional agent selected from the group consisting of a nucleoside reverse transcriptase inhibitor, a non-nucleoside reverse transcriptase inhibitor, a protease inhibitor, a HIV zinc finger inhibitor, a cell cycle inhibitor, a cytotoxic agent, an HIV integrase inhibitor, a nucleocapsid inhibitor, and a viral entry inhibitor,
optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

10. (Original) The composition according to claim 7 wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

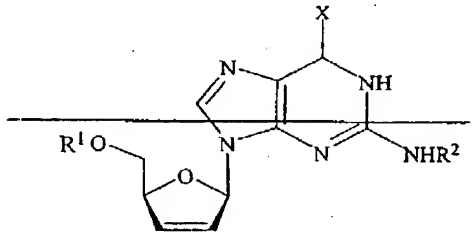
11. (Original) The composition of claim 9 wherein said additional agent is a nucleoside reverse transcriptase inhibitor selected from the group consisting of AZT, 3TC, ddC, FTC, D4FC, D4T, ddI, PMPA, Bis(POC)PMPA and mixtures thereof.

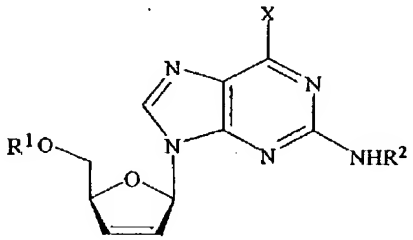
12. (Presently amended) The composition of claim 9 wherein said additional agent is a non-nucleoside reverse transcriptase inhibitor selected from the group consisting of Nevirapine, Delavirdine, Efavirenz, Emivirine, TIBO, ~~TIBO derivatives,~~ GW420 867X, UC 781 and mixtures thereof.

13. (Original) The composition of claim 9 wherein said additional agent is a protease inhibitor selected from the group consisting of Saquinavir, Amprenavir, Indinavir, Nelfinavir, Ritonavir, Tipranavir, Iopinavir, GW433 908, Lasinavir and mixtures thereof.

14. (Original) The composition of claim 9 wherein said additional agent is selected from the group consisting of 1,1'-azobisformamide, hydroxyurea, LiGLA, and mixtures thereof.

15. (Presently amended) A method for inhibiting the growth, elaboration and/or the replication of HIV in a patient comprising administering to said patient a combination of an anti-HIV effective amount of a compound according to the structure:





~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;

R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and

R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group or a pharmaceutically acceptable salt thereof; and

at least one additional agent selected from the group consisting of a nucleoside reverse transcriptase inhibitor, a non-nucleoside reverse transcriptase inhibitor, a protease inhibitor, a HIV zinc finger inhibitor, a cell cycle inhibitor, a cytotoxic agent, an HIV integrase inhibitor, a nucleocapsid inhibitor, and a viral entry inhibitor,
optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

16. (Original) The method according to claim 15 wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

17. (Original) The method of claim 15 wherein said additional agent is a nucleoside reverse transcriptase inhibitor selected from the group consisting of AZT, 3TC, ddC, FTC, D4FC, D4T, ddI, PMPA, Bis(POC)PMPA and mixtures thereof.

18. (Presently amended) The method of claim 15 wherein said additional agent is a non-nucleoside reverse transcriptase inhibitor selected from the group consisting of Nevirapine, Delavirdine, Efavirenz, Emivirine,TIBO, ~~TIBO-derivatives,~~ GW420 867X, UC 781 and mixtures thereof.

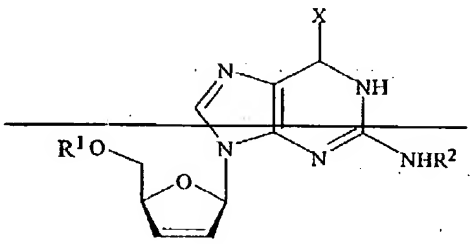
19. (Original) The method of claim 15 wherein said additional agent is a protease inhibitor selected from the group consisting of Saquinavir, Amprenavir, Indinavir, Nelfinavir, Ritonavir, Tipranavir, Iopinavir, GW433 908, Lasinavir and mixtures thereof.

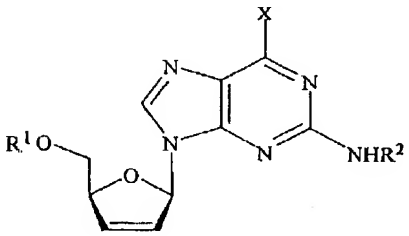
20. (Original) The method of claim 15 wherein said additional agent is selected from the group consisting of 1,1'-azobisformamide, hydroxyurea, LiGLA, and mixtures thereof.

21. (Original) The method of claim 16 wherein said additional agent is a nucleoside reverse transcriptase inhibitor selected from the group consisting of AZT, 3TC, ddC, FTC, D4FC, D4T, ddI, PMPA, Bis(POC)PMPA and mixtures thereof.

22. (Original) The method according to claim 16 wherein said additional agent is selected from the group consisting of AZT, 3TC and mixtures thereof.

23. (Presently amended) A method of reducing the likelihood that an individual will contract HIV or that an HIV infection will mature into AIDS in a patient comprising administering to said individual or said patient in need thereof a combination of agents comprising an effective amount of at least one compound according to the structure:





~~Where~~ where X is OCH_3, N_3, $NHCH_3$, $N(CH_3)_2$ or an aminocyclopropyl group;

R^1 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group, a phosphate, diphosphate, triphosphate or phosphodiester group; and

R^2 is H or a C_1 to C_{20} acyl or ~~ether~~ alkyl group or a pharmaceutically acceptable salt thereof; and at least one additional agent selected from the group consisting of a nucleoside reverse transcriptase inhibitor, a non-nucleoside reverse transcriptase inhibitor, a protease inhibitor, a HIV zinc finger inhibitor, a cell cycle inhibitor, a cytotoxic agent, an HIV integrase inhibitor, a

nucleocapsid inhibitor, and a viral entry inhibitor,
optionally in combination with a pharmaceutically acceptable carrier, additive or excipient.

24. (Original) The method according to claim 23 wherein X is an aminocyclopropyl group and R^1 and R^2 are H.

25. (Original) The method of claim 23 wherein said additional agent is a nucleoside reverse transcriptase inhibitor selected from the group consisting of AZT, 3TC, ddC, FTC, D4FC, D4T, ddI, PMPA, Bis(POC)PMPA and mixtures thereof.

26. (Presently amended) The method of claim 23 wherein said additional agent is a non-nucleoside reverse transcriptase inhibitor selected from the group consisting of Nevirapine, Delavirdine, Efavirenz, Emivirine,TIBO, ~~TIBO derivatives,~~ GW420 867X, UC 781 and mixtures thereof.

27. (Original) The method of claim 23 wherein said additional agent is a protease inhibitor selected from the group consisting of Saquinavir, Amprenavir, Indinavir, Nelfinavir, Ritonavir, Tipranavir, Iopinavir, GW433 908, Lasinavir and mixtures thereof.

28. (Original) The method of claim 23 wherein said additional agent is selected from the group consisting of 1,1'-azobisformamide, hydroxyurea, LiGLA, and mixtures thereof.

29. (Original) The method of claim 24 wherein said additional agent is a nucleoside reverse transcriptase inhibitor selected from the group consisting of AZT, 3TC, ddC, FTC, D4FC, D4T, ddI, PMPA, Bis(POC)PMPA and mixtures thereof.

30. (Original) The method according to claim 24 wherein said additional agent is selected from the group consisting of AZT, 3TC and mixtures thereof.